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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/662,837	09/15/2003	Michael Bart Viola	GP-303377	1187

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EXAMINER	
HANDAL, KAITY V	
ART UNIT	**PAPER NUMBER**
1764	

DATE MAILED: 04/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/662,837	VIOLA ET AL.	
	Examiner	Art Unit	
	Kaity Handal	1764	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☐ Claim(s) 1-20 is/are pending in the application.

4a) Of the above claim(s) 16-20 is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-15 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claim(s) 1-20 are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:

I. Claims 1-15, drawn to an apparatus, classified in class 422, subclass 197R.

II. Claims 16-20, drawn to a method, classified in class 48, subclass 131.

The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another and materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case, the apparatus as claimed can be used to practice another and materially different process, one which does not require mixing the fluid material.

Because these inventions are independent or distinct for the reasons given above and have acquired a separate status in the art in view of their different classification, restriction for examination purposes as indicated is proper.

Because these inventions are independent or distinct for the reasons given above and the inventions require a different field of search (see MPEP § 808.02), restriction for examination purposes as indicated is proper.

During a telephone conversation with Kathryn Marra on 4/14/2006 a provisional election was made without traverse to prosecute the invention of Group I, claims 1-15.

Affirmation of this election must be made by applicant in replying to this Office action. Claims 16-20 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-2, 10 and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Ward (US 2002/0102192 A1).

With respect to claims 1, 10 and 13, Ward teaches reformer (page 3, paragraph [0029]) comprising a housing/interior wall (fig. 1, 7) defining a frustoconical interior region (fig. 2, 6) having an inlet opening (2/B) and an outlet opening (3/D); a first (8) and a second retention member/restraining means (4) (page 2, paragraph [0016], lines 1-4), said first retention member/particles (8) in fluid communication with said inlet opening (2/B) (illustrated) and said second retention member/restraining means (4) in fluid

communication with said outlet opening (3/D), and a plurality of particles (6) contained within said frustoconical interior (fig. 2, 6) region between said first retention member/particles (8) and said second retention member (4), and a reaction surface (catalyst material) (6), said reaction surface (6) in fluid communication with said outlet opening (3/D).

With respect to claim 2, Ward teaches wherein the inlet opening (B) comprises a diameter less than a diameter of said outlet opening (D).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 3-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ward (US 2002/0102192 A1), as applied to claim 1 above.

With respect to claims 3-4, while Ward teaches the general shape of the frustoconical interior region (fig. 2, 6), he fails to show the specific cone angle. It has been held that if the change in size and shape is not patently distinct over the prior art absent persuasive evidence that the particular configuration of the claimed invention is significant. See *In re Rose*, 220 F.2d 459, 105 USPQ 237 (CCPA 1955); *In re Rinehart*, 531 F.2d 1048, 189 USPQ 143 (CCPA 1976); *In re Dailey*, 357 F.2d 669, 149 USPQ 47 (CCPA 1966). MPEP 2144.04.

6. Claims 5-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ward (US 2002/0102192 A1), as applied to claim 1 above, and further in view of Scheuerman (US 5,916,529).

With respect to claim 5, Ward discloses all claim limitations as set forth above but fails to show wherein said particles are spherical in shape. Scheuerman teaches a reactor (fig. 1, 11) wherein the particles/catalyst is spherical in shape in order to avoid adverse effects in the reactor vessel due to catalyst breakage (col. 32, lines 26-35).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to include particles/catalyst of spherical shape in Ward's apparatus, as taught by Scheuerman, in order to avoid adverse effects in the reactor vessel due to catalyst breakage.

With respect to claim 6, Ward discloses all claim limitations as set forth above but fails to show wherein said particles are comprised of zirconium oxide. Scheuerman teaches wherein said particles are comprised of zirconium oxide/inorganic oxides of Group IV as preferred in the art (col. 34, lines 43-49).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to include particles comprised of zirconium oxide/inorganic oxides of Group IV in Ward's apparatus, as taught by Scheuerman, as preferred in the art.

7. Claims 7-8 and 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ward (US 2002/0102192 A1), as applied to claims 1 and 10 above, and further in view of Dijkhuizen (US 2004/0120847 A1).

With respect to claims 7 and 11, Ward discloses all claim limitations as set forth above but fails to show wherein a tube mixer is in fluid communication with said inlet opening (fig. 2, 2/B). Dijkhuizen teaches the benefit of having a tube mixer in fluid communication with an inlet opening in order to allow material flowing through to move at a constant velocity (page 5, paragraph [0028], lines 14-18 and page 6, lines 1-4).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to include a tube mixer in fluid communication with said inlet opening in Ward's apparatus, as taught by Dijkhuizen, in order to allow material flowing through to move at a constant velocity.

With respect to claims 8 and 12, Ward further teaches wherein said tube mixer comprises a cylindrically shaped tube and a helical shaped divider longitudinally disposed within an interior region of said cylindrically shaped tube/helical chute conveyor (page 5, paragraph [0028], lines 14-18 and page 6, lines 1-4).

8. Claims 9 and 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ward (US 2002/0102192 A1), as applied to claims 1 and 10 above, and further in view of Edlund et al. (US 2003/0159354 A1).

With respect to claims 9 and 14, Ward discloses all claim limitations as set forth above but fails to show wherein his reformer comprises an insulator proximate to said outlet opening. Edlund teaches a fuel processor comprising a reformer having an insulator proximate to said outlet opening/insulation around the end plates in order to reduce heat loss (page 14, paragraph [0135], lines 6-7)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to include insulator proximate to said outlet opening/insulation around the end plates in Ward's apparatus, as taught by Edlund, in order to reduce heat loss.

With respect to claim 15, Ward discloses all claim limitations as set forth above but fails to show wherein his reformer comprises at least one vaporizer. Edlund teaches a fuel processor comprising a reformer having at least one vaporizer/coil (fig. 3, 30a) in order to vaporize the mixture of liquid methanol and water and allow the reaction mix to enter the reforming region as vapor (page 3, paragraph [0042], lines 10-15).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to include at least one vaporizer in Ward's apparatus, as taught by Edlund, in order to vaporize the mixture of liquid methanol and water and allow the reaction mix to enter the reforming region as vapor.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kaity Handal whose telephone number is (571) 272-8520. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

KH

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4/18/2006

ALEXA DOROSHENK NECKEL
PRIMARY EXAMINER